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CARLSON, GASKEY & OLDS, P.C.
400 WEST MAPLE ROAD
SUITE 350
BIRMINGHAM, MI 48009

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REDMAN, JERRY E	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/020,869
Filing Date: December 12, 2001
Appellant(s): DOBSON, SIMON BLAIR

Ms. Karin Butchko
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/4/2006 appealing from the Office action mailed 1/23/2006 (final rejection).

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

EP	0 579 535 A1	Queveau	7-1993
WO	01/14665 A1	Larabel	3-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 4, 5, 17, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over European patent to Queveau in view of WO patent No. 01/14665 to Larabel.

(10) Response to Argument

European patent to Queveau discloses a vehicle door assembly (1) having an outer door skin (2), an inner door panel (3), a waterproof trim panel (4) mounted adjacent to the inner door panel (3) providing a "complete" waterproof barrier between two spaces, a latch mechanism (8), a manually actuable element (97), and a bezel (96, specification calls element 97 a cap which would serve two purposes, one as a bezel for the manually actuable element (97) and the other is to provide a "sealing arrangement" between the cap and the trim panel) secured to the trim panel (4). European patent to Queveau fails to disclose an O-shaped seal between the manually actuable element

and an opening in which the manually actuable element is moved. WO patent No. 01/14665 to Larabel discloses an O-shaped seal (page 8, lines 12-16), which seals between a door panel and a projection into the door panel. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide European patent to Queveau with an elastic seal ring as taught by WO patent No. 01/14665 to Larabel since an elastic seal ring protects the interior space from the entry of air, water and/or other contaminants.

The appellant's argument is based on the phraseology "waterproof". Firstly, EP patent to Queveau discloses the structural limitations as discussed in detail above. Furthermore, Queveau discloses panel 4 to be molded and/or be formed from a synthetic material (page 1, second paragraph, page 3, third paragraph). Thus, the Examiner's stance is that if something is molded and/or formed from a synthetic material, then it is "waterproof". Although Queveau fails to specifically state that the material is "waterproof", the automobile industry and my many years of experience in class 49 which handles these particular inventions has produced these panels to be formed of metal and/or plastic. The use of plastic is well known in the art because of its strength, durability, and lightweight for obvious reasons; and therefore the panel of Queveau is "waterproof". Secondly, many products on the market use the phraseology "waterproof", i.e., jackets, tents, etc..., yet they repeal water but are not 100% "waterproof" as anyone whose walked in the rain or gone camping could testify.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

An English translation of EP 0 579 535 A1 to Queveau is herein attached.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Jerry Redman

Jerry Redman
Primary Examiner

Conferees:

Greg Strimbu

Pete Cuomo

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(71) Applicant: ADAC PLASTICS, INC. [US/US]; 5670 Eagle Drive S.E., Grand Rapids, MI 49588-8375 (US).

(72) Inventors: LARABEL, James; 8615 East Street, Newaygo, MI 49337 (US). BOORSMA, Michael; 3892 Omaha S.W., Grandville, MI 49418 (US).

(74) Agents: WOOD, Donald, L. et al.; Young & Basile, P.C., 3001 W. Big Beaver Road, Suite 624, Troy, MI 48084-3107 (US).

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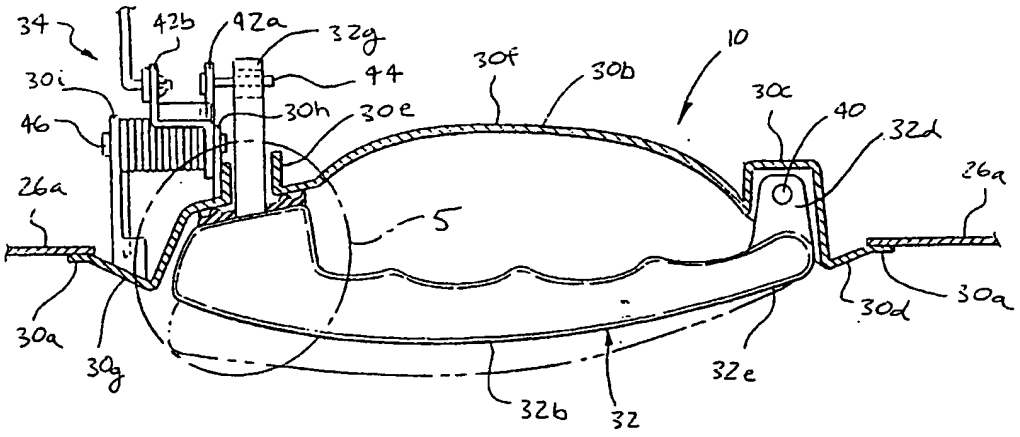
(54) Title: COMBINED CUSHION AND SEAL FOR VEHICULAR DOOR HANDLE ASSEMBLY



(57) Abstract: An outside door handle assembly (10) for a motor vehicle. The handle assembly (10) includes a housing (30) mounted in the door and a handle (32) having a grip portion and an arm portion extending inwardly from one end of the handle (32) for passage through an opening in the housing (30) for coaction with a latch release mechanism positioned within the door. An annular resilient member is mounted on the arm portion proximate the juncture of the arm portion and the grip portion. The resilient member (38) includes a plurality of cushion portions which project inwardly from the inner surface of the resilient member (38) to cushion the impact of the handle (32) with the housing (30) as the handle (10) moves to its closed position and the resilient member (38) further includes an annular peripheral seal portion projecting inwardly from the inner surface of the resilient member (38) in surrounding relation to the cushion portions and movable into sealing coaction with the housing (30) to preclude the entry of moisture and contaminants into the interior of the door with the handle (32) in its closed position.

WO 01/14665 A1

COMBINED CUSHION AND SEAL FOR VEHICULAR DOOR HANDLE ASSEMBLY

BACKGROUND OF THE INVENTION

This invention relates to door handle assemblies and, more particularly, to door handle assemblies especially suitable for use on motor vehicles. Motor vehicle door handle assemblies typically include a handle member which is movable between open and closed positions to provide latching and unlatching of the door. The door handle assembly typically includes a spring member which provides moderate resistance to opening movement of the handle and ensures that the handle will move firmly and positively to its closed position upon release of the handle. However, the firm positive movement of the door handle assembly to its closed position will, without some cushioning provision, generate an annoying slapping noise which detracts from the feeling of overall quality with respect to the door handle assembly and which may contribute to ultimate damage to the assembly. In an effort to avoid this objectionable closing noise and minimize long-term handle assembly damage, cushioning members have been provided in the door handle assembly which protectively intercept the closing movement of the door handle and cushion the closing movement. However, prior art cushioning member designs, while effective to minimize or reduce the objectionable slapping noise, also introduce the potential for leakage of air, water and other contaminants into the interior of the vehicle door through the door handle assembly with resultant potential for corrosion and material deterioration.

SUMMARY OF THE INVENTION

This is invention is directed to the provision of an improved motor vehicle door handle assembly.

More particularly, this invention is directed to the provision of a motor vehicle door handle assembly in which the movement of the door handle to its closed position is effectively cushioned and in which an

effective water and contaminant seal is maintained at the door handle assembly.

The door handle assembly of the invention is intended for use with a vehicle including a door and a latch assembly mounted on the door and controlled by the door handle assembly. The door handle assembly includes a housing adapted to be positioned in the door and a handle mounted on the housing for movement between open and closed positions.

According to the invention, the housing defines an opening and an annular surface in surrounding relation to the opening; the handle includes a main body grip portion, an arm portion extending inwardly from the grip portion and passing through the opening in the housing for coaction with a latch release mechanism positioned in the door, and an annular handle surface on the grip portion in surrounding relation to the arm portion; and the door handle assembly includes an annular resilient member positioned in surrounding relation to the arm portion and including an annular main body portion defining a generally planar annular surface, a series of spaced cushion portions projecting from the annular resilient member surface and movable into cushioning coaction with one of the annular housing surface and the annular handle surface to cushion the movement of the handle to its closed position, and an annular peripheral seal portion projecting from the resilient member annular surface in surrounding relation to the cushion portions and movable into sealing coaction with the one annular surface to preclude the entry of moisture and contaminants into the interior of the door with the handle in its closed position. This arrangement allows a single, simple resilient member to serve both a cushioning and sealing function with respect to the door handle assembly.

According to a further feature of the invention, the planar annular surface of the main body portion of the resilient member is an inner surface; the cushion portions and the seal portion of the resilient member project inwardly from the inner planar annular surface of the resilient

member; the resilient member is mounted on the arm portion with an outer surface of the main body portion mounted against the annular handle surface; and the cushion portions and the seal portion of the resilient member coact with the annular housing surface. This specific arrangement, whereby the resilient member is mounted on and moves with the handle member, provides an efficient means of providing the desired cushioning and sealing functions.

According to a further feature of the invention, the cushion portions project inwardly from the forward annular surface of the resilient member further than the peripheral seal portion projects so that the initial contact between the resilient member and the housing annular surface as the handle moves to its closed position is the cushioning impact of the cushion portions against the annular housing surface whereafter, with resilient distortion and flattening of the cushion portions, the peripheral seal portion may move into sealing engagement with the housing annular surface. This arrangement ensures that the initial contact will provide the desired cushioning action and the subsequent contact will provide the desired sealing action. According to a further feature of the invention, the handle assembly further includes a spring biasing the handle toward its closed position and the spring is operative with the handle its closed position to maintain the cushion portions in a distorted, flattened configuration so as to allow the peripheral seal portion to sealingly engage the housing annular surface. The spring member already present in the typical door handle assembly thereby provides initial cushioning movement of the resilient member against the annular housing surface and thereafter maintains the cushion portions of the resilient member in a distorted, flattened configuration to allow the peripheral seal portion to sealingly engage the housing annular surface.

According to a further feature of the invention, the handle is pivotally mounted to the housing proximate one end of the grip portion and the arm portion extends forwardly from another end of the grip portion for

passage through the opening in the housing. This construction allows the cushioning and sealing member of the invention to be readily employed with a typical grip-type door handle assembly.

According to a further feature of the invention, the housing defines an outwardly opening cavity proximate the housing opening; the housing opening and the housing annular surface are defined at the bottom of the cavity; and the other end of the handle grip portion is configured to be received in the cavity with the handle in its closed position so that an outer face of the handle grip portion may be substantially flush with an outer face of the housing with the handle in its closed position. This arrangement allows the handle to assume a flush configuration with respect to the housing with the handle in its closed position.

According to a further feature of the invention, each cushion portion has a domed configuration in cross section and the seal portion has a knife edge configuration in cross section. This specific cross-sectional configuration of the cushion and the seal portion allows the cushion portions to provide an effective cushioning action while allowing the seal portion to provide an effective sealing action.

According to a further feature of the invention, the door handle assembly is an outside door handle assembly. Whereas the invention has applicability to both inside and outside motor vehicle door handle assemblies, the invention is particularly effective with respect to an outside door handle assembly where the cushioning and sealing problems are more acute.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a fragmentary, perspective view of a motor vehicle including a door embodying the door handle assembly of the invention;

Figure 2 is a perspective, fragmentary view of the door seen in Figure 1;

Figure 3 is a side elevational view of the invention door handle assembly;

Figure 4 is a cross-sectional view taken on line 4-4 of Figure 3;

Figure 5 is a detail view taken within the circle 5 of Figure 4;

Figures 6 and 7 are detail views of a resilient cushioning and sealing member employed in the invention door handle assembly;

Figure 8 is a detail view illustrating the cushioning and sealing action of the resilient member; Figures 9 and 10 are fragmentary views showing detailed aspects of the housing member of the door handle assembly;

Figure 11 is a fragmentary rear view of the housing member; and

Figure 12 is a perspective view of the handle utilized in the invention door handle assembly.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The invention door handle assembly 10 is seen in Figure 1 in association with a fragmentarily shown motor vehicle 12 including a windshield 14, a front quarter panel 16, a hood 18, an A pillar 20, a sill 22, a B pillar 24, and a door 26 positioned in the door opening defined by A pillar 20, front quarter panel 16, sill 22, and B pillar 24.

Door handle assembly 10 (Figures 3, 4, and 11) includes escutcheon or housing 30, a handle 32, a bell crank assembly 34, a spring 36, and a resilient member 38.

Housing 30 may be formed of a suitable plastic or metallic material and has a generally oval configuration sized to fit into a suitable opening in the outer skin 26a of door 26 utilizing fastener means, not shown. Housing 30 includes a peripheral flange portion 30a positioned against the periphery of the opening in the outer door skin 26a, a central bowl portion 30b, a pivot housing portion 30c proximate the rear end 30d of the housing, a rectangular tubular guide portion 30e projecting inwardly from an inner face 30f of the housing proximate the front end 30g of the housing, pillars 30h and 30i projecting inwardly in spaced relation from the inner face 30f of the housing proximate guide portion 30e. The outer face of the housing

sectional configuration sized to fit within outwardly opening handle cavity 30j so that, as the handle moves to its closed position, handle end 32c may seat within cavity 30j so than an outer face of the handle grip portion may be substantially flush with the adjacent outer face of the housing.

Bell crank assembly 34 (Figures 4 and 11) includes a bell crank 42, a pivot pin 44, and a pivot pin 46. Pivot pin 44 is mounted on an end 42a of bell crank 44 and is received in opening 32f in the arm portion 32b of the handle. Pivot pin 46 is mounted at its opposite ends in housing pillars 30h and 30i and is fixedly secured to a central portion of bell crank 42. The free end 42b of bell crank 42 is adapted to be secured to a suitable link or cable 48 which is connected in known manner to a latch assembly 50 positioned on the shut face 26b of the door for coaction in known manner with a bolt or striker 52 provided on the B pillar 24 of the vehicle. It will be understood that movement of the handle 32 between its closed and open positions pivots bell crank lever 42 in a manner such that cable or link 48 is operative to move latch 50 between latched and unlatched positions in known manner.

Spring 36 comprises a coil spring and is positioned concentrically around pivot shaft 46 between bell crank 42 and pillar 30i. Spring 36 is anchored at its opposite ends to the housing and to the bell crank whereby to act in known manner to resiliently resist opening movement of the handle and move the handle in a firm positive manner to its closed position upon release of the handle.

Resilient member 38 (Figures 5, 6, 7, and 8) has a generally rectangular configuration and is formed of a suitable elastomeric material. Resilient member 38 includes a generally planar annular main body portion 38a, a series of cushion portions 38b, and a peripheral seal portion 38c. Main body portion 38a defines a central rectangular aperture 38d, a generally planar annular inner face 38e, and a generally planar annular outer face 38f. Cushion portions 38b have a domed cross-sectional configuration and project inwardly from the inner annular surface 38e of the

(Figures 9 and 10) is configured proximate housing front end 30g to define an outwardly opening cavity 30j having a bottom face 30k. A rectangular opening 30l is defined in bottom face 30k and an annular housing surface 30m is defined in bottom face 30k in surrounding relation to opening 30l. Rectangular opening 30l is aligned with and is coextensive with the rectangular central passage 30n of rectangular guide portion 30e.

Handle 32 (Figures 3, 4, and 12) may be formed of a suitable plastic or metallic material. Handle 32 includes a main body elongated grip portion 32a, an arm or finger portion 32b projecting inwardly from grip portion 32a proximate the forward end 32c of the grip portion, and a pivot portion 32d projecting inwardly from grip portion 32a proximate the rearward end 32e of the grip portion. Arm portion 32b has a rectangular configuration in cross section sized to pass slidably through rectangular housing opening 30l and rectangular housing passage 30n; defines a rectangular opening 32f proximate the inner end 32g of the arm portion; and coacts at a juncture with the inner face of the forward end 32c of the grip portion to define an annular housing surface 32h in surrounding relation to the arm portion.

Handle 32 is positioned in overlying relation to housing bowl portion 30b with handle pivot portion 32d received in housing pivot portion 30c, the forward end 32c of the grip portion of the handle received in cavity 30j of the housing, and arm portion 32b projecting inwardly from the grip portion and passing through housing opening 30l and through passage 30n of guide portion 30e to position the inner end 32g of the arm portion inwardly of the inner end of the guide portion 30e and within the interior of the door 26. A pivot pin 40 mounts the forward end 32e of the grip portion 32a of the handle for pivotal movement relative to the housing about the axis of pivot pin 40 so that the handle may be moved pivotally between the solid line, closed position seen in Figure 4 to the dash line open position seen in Figure 4. As the handle moves from its solid line closed position to its dash line open position, arm portion 32b moves outwardly within and is guided by housing guide portion 30e. The front end 32c of the handle has a cross-

resilient member, and peripheral seal portion 38c has a knife edge cross-sectional configuration and projects inwardly from annular surface 38e in surrounding relation to the cushion portions. In the relaxed configuration of resilient member 38, cushion portions 38b project inwardly from surface 38e by a distance slightly in excess of the distance by which the peripheral seal 38c projects inwardly from portion 38e.

Resilient member 38 is positioned on handle arm portion 38b at the juncture between arm portion 38b and the forward end 32c of the handle with the rear annular face 38f of the resilient member mounted against the annular handle surface 32h and is suitably fixedly secured to surface 32h. In operation, as the grip portion 32a of the handle is released to allow the handle to move to its closed position, resilient member 38 acts to both cushion the movement of the handle to its closed position to minimize objectionable noise and further acts to provide a seal between the handle member and the housing to preclude the entry of air, water or other contaminants into the interior of the door. Specifically, as the handle moves to its closed position, the tips of the cushion portions 38b engage housing annular surface 30m to cushion the impact of the handle against the housing and minimize objectionable noise whereafter, following distortion or flattening of the domed cushion members, the knife edge of the peripheral seal portion 38c moves into sealing engagement with housing annular surface 30m in surrounding relation to the cushion members to preclude the entry of contaminants into the interior of the door handle in its closed position. Spring 36 acts to move the handle firmly and positively to its closed position and further acts to maintain the domed cushion portions in a slightly compressed configuration whereby to allow the knife edges of the peripheral seal to maintain sealing engagement with the annular housing portion surface 30m.

The door handle assembly of the invention will be seen to provide an improved construction wherein the noise associated with the movement of the handle to its closed position is effectively muzzled and

wherein effective sealing is provided between the door handle and the housing to minimize the entry of contaminants into the interior of the door with the handle in its closed position.

Whereas a preferred embodiment of the invention has been illustrated and described in detail, it will be apparent that various changes may be made into this disclosed embodiment without departing from the scope or spirit of the invention.

What is claimed is:

1. A door handle assembly for use with a vehicle including a door and a latch assembly mounted on the door and controlled by the door handle assembly, the assembly including:

a housing adapted to be positioned in the door and defining an opening and an annular surface in surrounding relation to the opening;

a handle mounted on the housing for movement between open and closed positions and including a main body grip portion, and an arm portion extending inwardly from the grip portion and passing inwardly through the opening in the housing for coaction with a latch release mechanism positioned within the door;

an annular handle surface on the grip portion in surrounding relation to the arm portion; and

an annular resilient member positioned in surrounding relation to the arm portion and including an annular main body portion defining a generally planar annular surface, a series of spaced cushion portions projecting from the resilient member annular surface and movable into cushioning coaction with one of said annular housing surface and said annular handle surface to cushion the movement of the handle to its closed position, and an annular peripheral seal portion projecting from the resilient member annular surface in surrounding relation to the cushion portions and movable into sealing coaction with said one annular surface to preclude the entry of moisture and contaminants into the interior of the door with the handle in its closed position.

2. A door handle assembly according to claim 1 wherein:

the planar annular surface of the main body portion of the resilient member is an inner surface;

the cushion portions and the seal portion project inwardly from the inner planar annular surface of the resilient member;

the resilient member is mounted on the arm portion with an outer surface of the main body portion mounted against the annular handle surface; and

the cushion portions and seal portions of the resilient member coact with the annular housing surface.

3. A door handle assembly according to claim 2 wherein the cushion portions project inwardly from the inner annular surface further than the peripheral seal portion projects so that the initial contact between the resilient member and the housing annular surface as the handle moves to its closed position is cushioning impact of the cushion portions against the annular housing surface whereafter, with resilient distortion and flattening of the cushion portions, the peripheral seal portion may move into sealing engagement with the housing annual surface.

4. A door handle assembly according to claim 3 wherein:

the handle assembly further includes a spring biasing the handle toward its closed position; and

the spring is operative with the handle in its closed position to maintain the cushion portions in a distorted, flattened configuration so as to allow the peripheral seal portion to sealingly engage the housing annular surface.

5. A door handle assembly according to claim 3 wherein:

the handle is pivotally mounted to the housing proximate one end of the grip portion; and

the arm portion extends inwardly from another end of the grip portion for passage through the opening in the housing.

6. A door handle assembly according to claim 5 wherein:

the housing defines an outwardly opening cavity proximate the housing opening;

the housing opening and the housing annular surface are defined in the bottom of the cavity; and

the other end of the handle grip portion is configured to be received in the cavity with the handle in its closed position so that an outer face of the handle grip portion may be substantially flush with an outer face of the housing with the handle in its closed position.

7. A handle assembly according to claim 1 wherein each cushion portion has a domed configuration in cross section and the seal portion has a knife edge configuration in cross section.

8. A door handle assembly according to claim 1 wherein the handle assembly is an outside door handle assembly.

9. A door handle assembly for use with a vehicle including a door handle and a latch assembly mounted on the door and controlled by the door handle assembly, the door handle assembly including a housing adapted to be positioned in the door and a handle mounted on the housing for movement between open and closed positions, characterized in that:

the handle includes a main body grip portion and an arm portion extending inwardly from the grip portion;

the housing defines an opening and an annular surface in surrounding relation to the opening;

the handle arm portion passes inwardly through the handle opening for coaction with a latch release mechanism positioned within the door; and

the housing further includes an annular resilient member mounted on and in surrounding relation to the arm portion and including an

annular main body portion defining a generally planar annular inner surface, a plurality of cushion portions projecting inwardly from the planar annular surface and movable into cushioning coaction with the annular housing surface to cushion the movement of the handle to its closed position, and an annular peripheral seal portion projecting inwardly from the planar annular surface in surrounding relation to the cushion portions and movable into sealing coaction with the annular housing surface to preclude the entry of moisture and contaminants into the interior of the door with the handle in its closed position.

10. A door handle assembly according to claim 1 wherein the annular resilient member is positioned on the arm portion at a juncture between the grip portion and the arm portion with an outer surface of the main body portion of the resilient member mounted against the grip portion.

11. A door handle assembly according to claim 9 wherein the cushion portions project inwardly from the inner annular surface further than the peripheral seal portion projects so that the initial contact between the annular member and the housing annular surface as the handle moves to its closed position is cushioning impact of the cushion portions against the annular housing surface whereafter, with resilient distortion and flattening of the cushion portions, the peripheral seal portion may be move into sealing engagement with the housing annular surface.

12. A door handle assembly according to claim 11 wherein:

the handle assembly further includes a spring biasing the handle toward its closed position; and

the spring is operative with the handle in its closed position to maintain the cushion portions in a distorted, flattened configuration so as to allow the peripheral seal portion to sealingly engage the housing annular surface.

13. A door handle assembly according to claim 11 wherein:

the handle is pivotally mounted to the housing proximate one end of the grip portion; and

the arm portion extends inwardly from another end of the grip portion for passage through the opening in the housing.

14. A door handle assembly according to claim 13 wherein:

the housing defines an outwardly opening cavity proximate the handle opening;

the handle opening and the handle annular surface are defined in the bottom of the cavity; and

the other end of the handle grip portion is configured to be received in the cavity with the handle in its closed position so that an outer face of the handle grip portion may be substantially flush with an outer face of the housing with the handle in its closed position.

15. A door handle assembly according to claim 9 wherein each cushion portion has a domed configuration in cross section and the seal portion has a knife edge configuration in cross section.

16. A door handle assembly according to claim 9 wherein the door handle assembly is an outside door handle assembly.

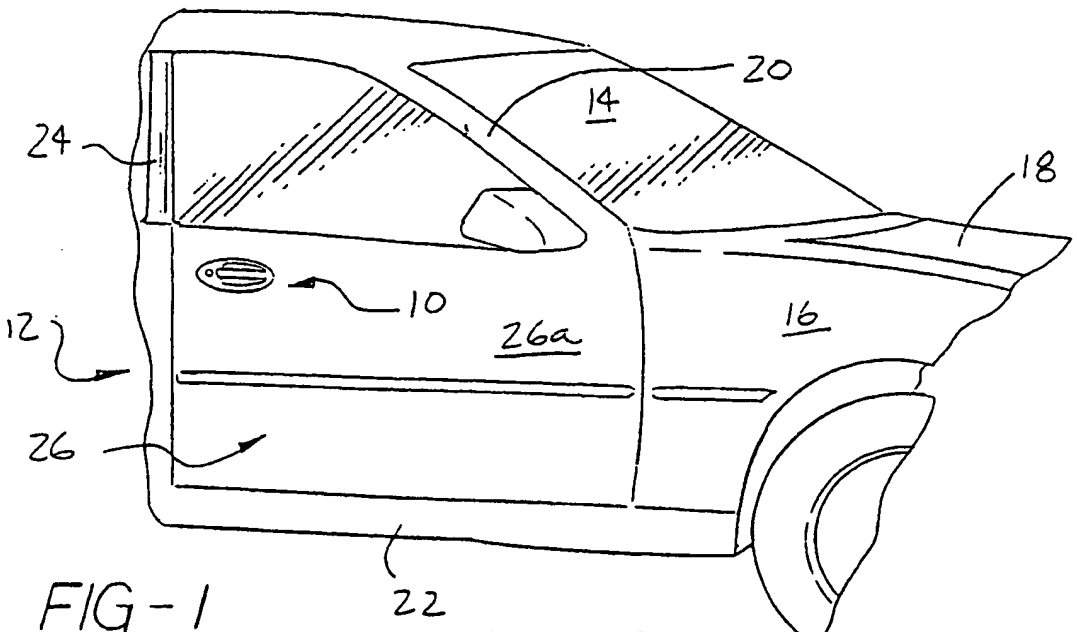


FIG-1

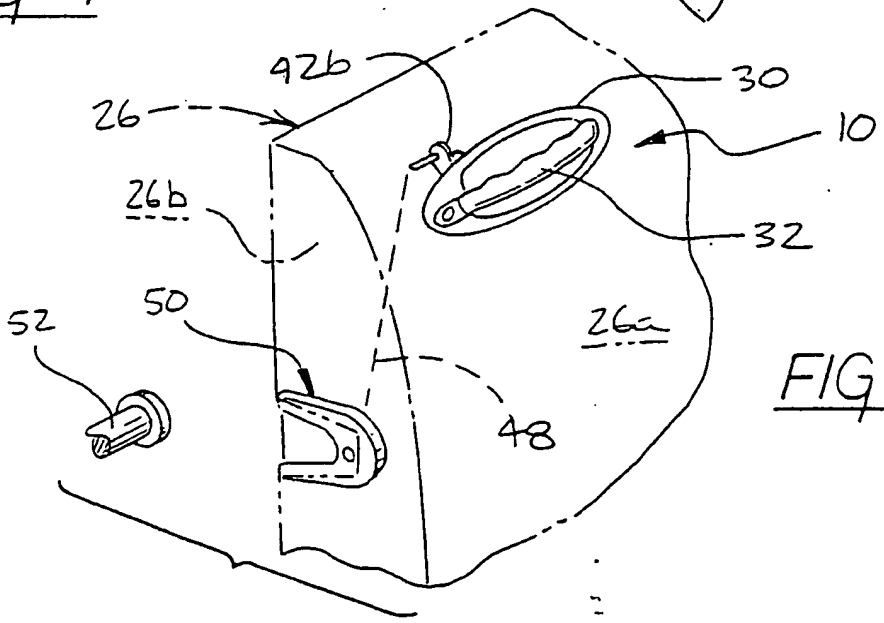


FIG-2

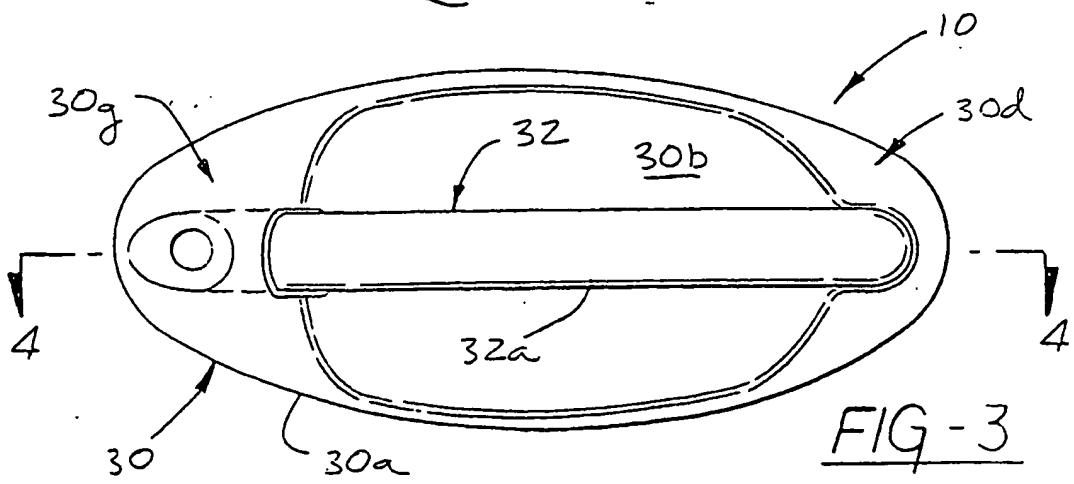


FIG-3

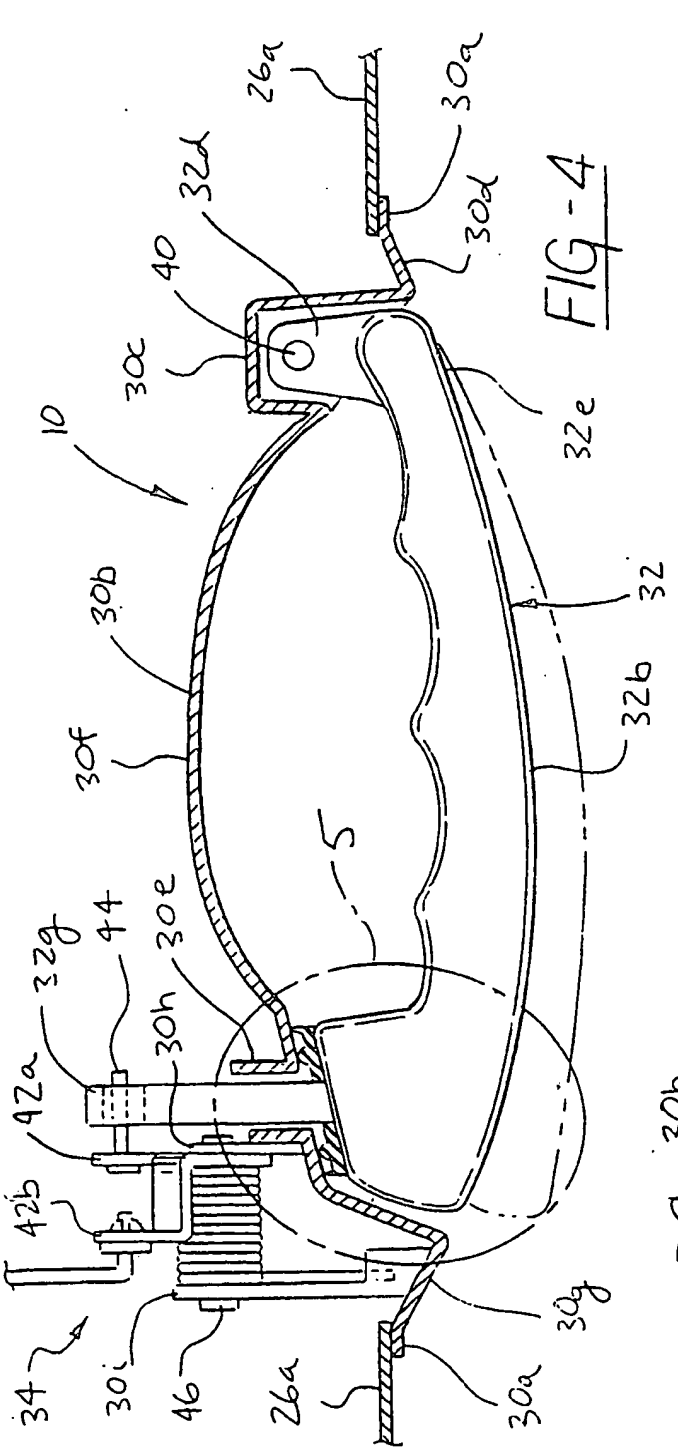


FIG-4

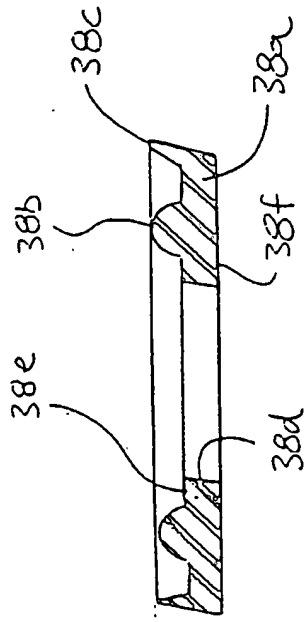


FIG-6

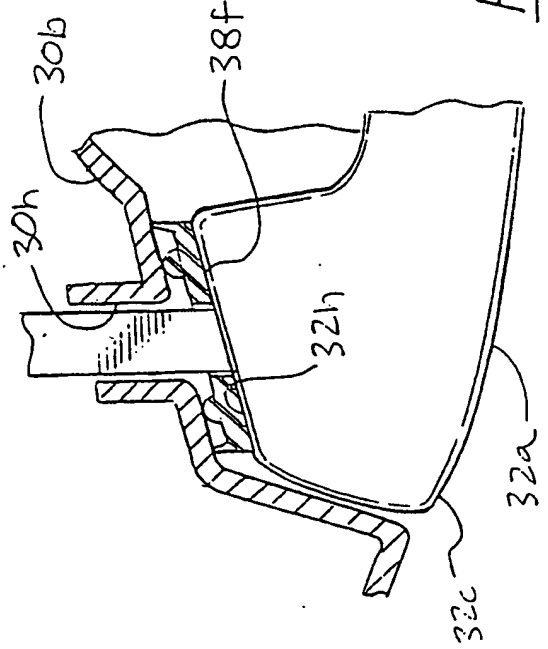


FIG-5

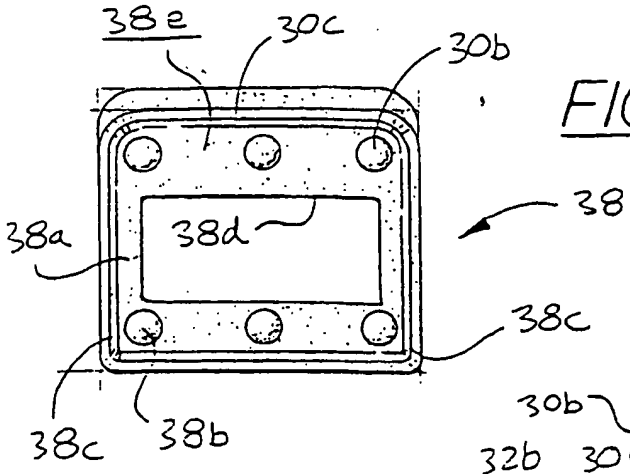


FIG-7

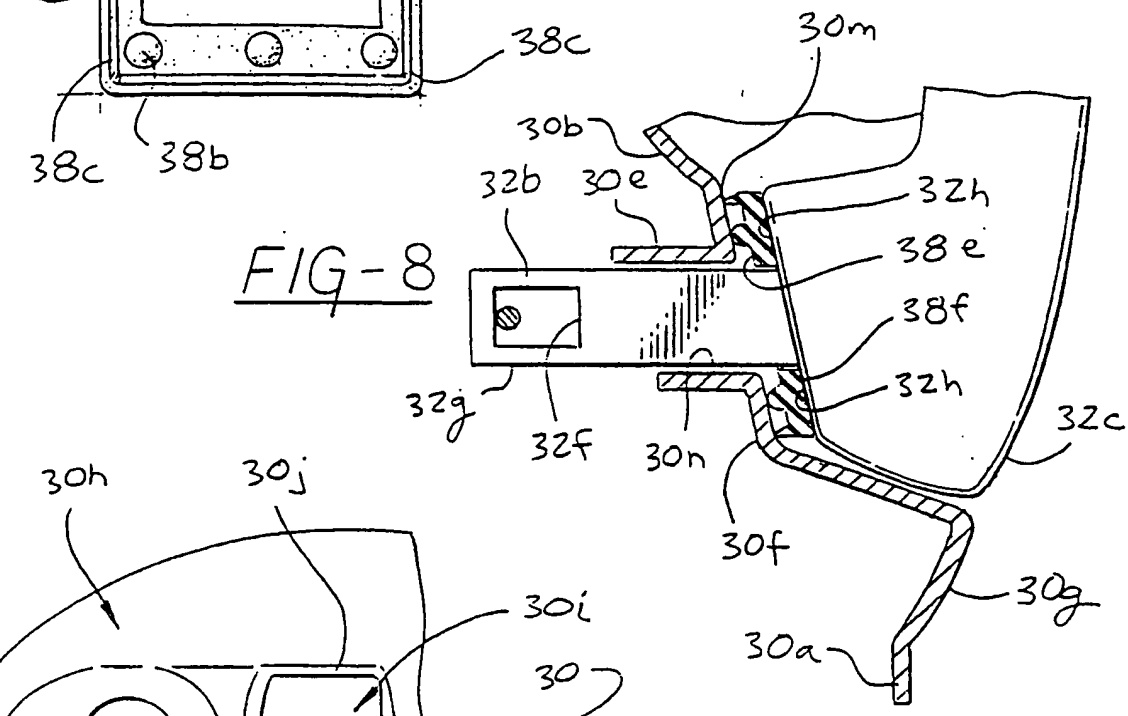


FIG-8

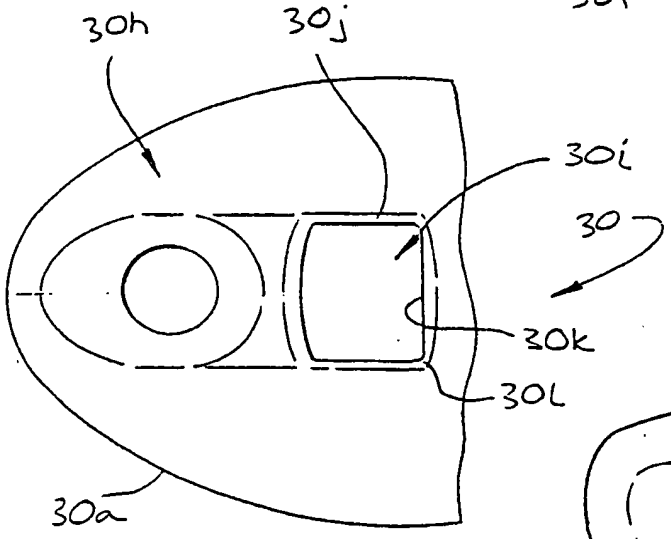


FIG-9

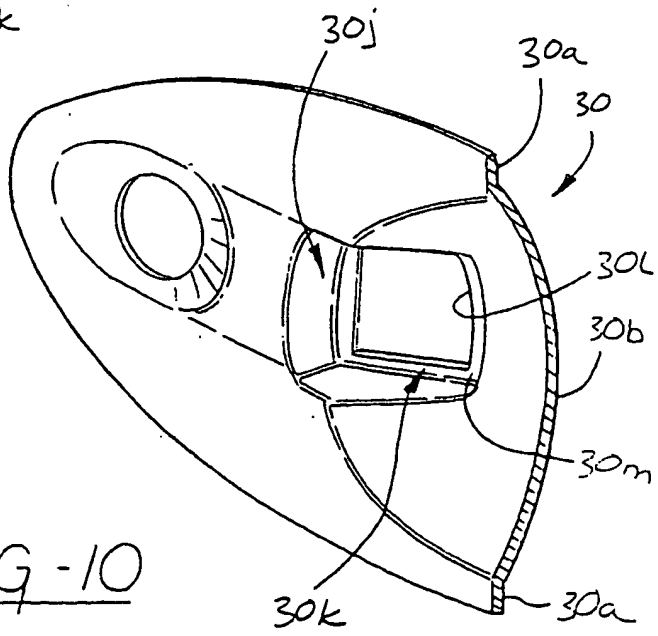


FIG-10

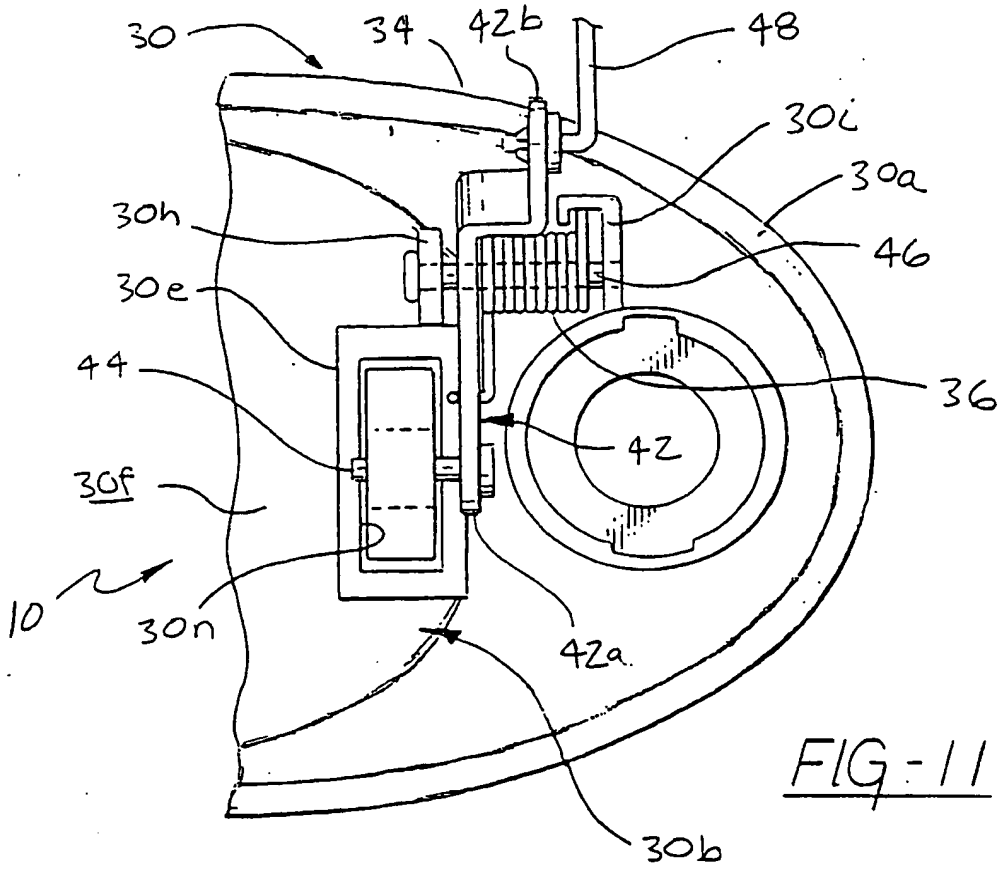

30
34
42b
48
30i
30a
30h
46
30e
44
36
42
30f
10
30n
42a
30b

FIG-11

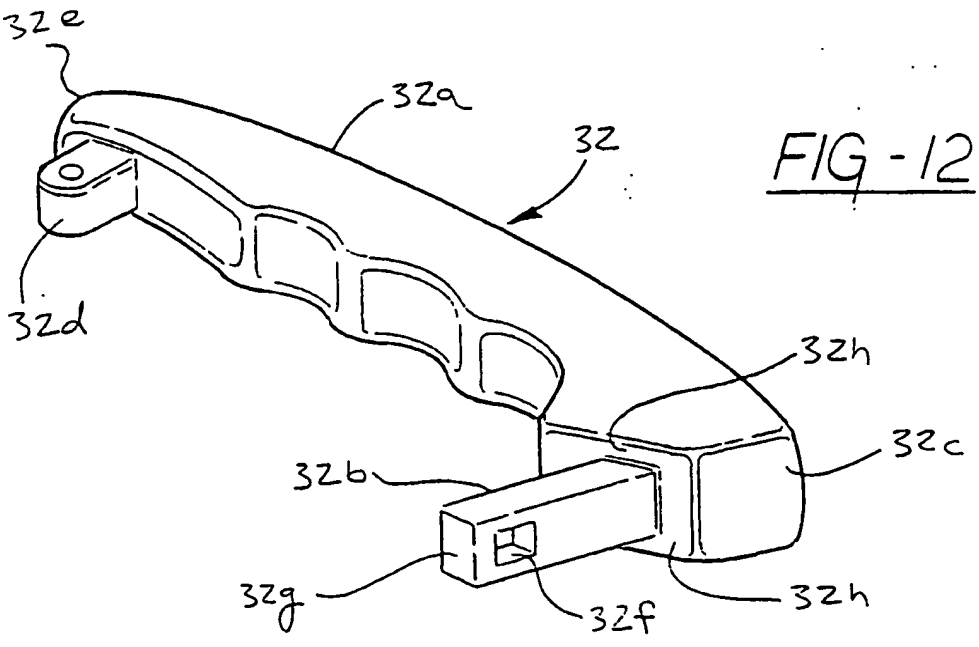

32e
32a
32
32d
32h
32c
32b
32g
32f
32h

FIG-12

INTERNATIONAL SEARCH REPORT

International application No
PCT/US00/22991

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :E05B 1/00
US CL :74/523

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 74/523,543 ; 277/916, 648, 644, 630; 296/146.1, 146.5; 292/336.3

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	US 5,352,004 A (NEDBAL) 04 October 1994, Figures 1 and 2.	1, 4-9, 12-16
A	US 5,671,927 A (SCHWEIGER) 30 September 1997.	NONE
A, P	US 6,042,159 A (SPITZLEY et al.) 28 March 2000.	NONE
A, P	US 6,070,923 A (TANIMOTO et al.) 06 June 2000 .	NONE
A, P	US 6,059,329 A (SPITZLEY) 09 May 2000.	NONE
A	US 5,092,642 A (LINDMAYER et al.) 03 March 1992.	NONE

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 16 NOVEMBER 2000	Date of mailing of the international search report 15 DEC 2000
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer VICKY A. JOHNSON Telephone No. (703) 305-3013

Form PCT/ISA/210 (second sheet) (July 1998)*

Vehicle door

The invention relates to a vehicle door, and particularly to a vehicle door of the type having an exterior panel and an interior panel which are fixed to one another, the interior panel having at least one opening.

Currently the doors of automobiles traditionally comprise an exterior panel which is generally made from sheet metal and constitutes an element of the bodywork, an interior panel known as a liner which is also made from sheet metal and onto which the exterior panel is crimped, these two panels delimiting between them a casing within which are disposed various fittings which are introduced through holes provided in the liner (window, window control mechanism, lock, door opening handle, etc.), and a trim panel made from synthetic material or coated with such a material and covering the part of the liner below the aperture for the window, supporting window controls, a device for demisting this window, an air duct clipped to the liner, and side pockets.

In these circumstances the installation of the elements in the casing is delicate, as the through holes are small in order to avoid weakening of the liner and the fixings are to be produced on the liner inside the casing, which is not directly visible.

Furthermore, the installation of the elements directly in the casing precludes a design in the form of pre-assembled sub-assemblies which can be installed rapidly.

In order to solve these problems, it would also be possible to envisage the provision of a relatively extended opening in the interior panel and installation of the fittings on the trim panel in such a way that the whole assembly constitutes the casing already referred to. In this case the trim panel which serves to support the mechanisms would itself have an important mechanical function and would therefore have to be fixed firmly on the structure of the door (the liner) by screws or the like; as the screw heads are not very attractive, they would have to be masked by caps which are hardly more attractive themselves. Moreover, the fixing of the mechanisms both on the sheet metal of the liner and on the synthetic material of the trim panel would involve a raised surface for covering the sheet metal/plastics, which is

unfavourable in terms of the weight; if it were chosen to reduce the extent of the opening in the sheet metal of the liner, the installation of the window, which must be positioned in front and rear guides in the interior of the door casing would be rendered difficult and even impossible.

The object of the invention is to remedy these drawbacks and to create a vehicle door such that the positioning of the fittings is facilitated by greater accessibility in their installation zone, but nevertheless without the door becoming fragile.

A further object of the invention is to make it possible for a part of the door, namely that bearing the fittings, to be produced a specialist subcontractor, this part then being assembled with another consisting principally of the trim and bodywork elements which have been produced by the vehicle manufacturer or another subcontractor.

To this end the invention relates to a vehicle door of the type comprising an exterior panel and an interior panel which are fixed to one another, the interior panel having at least one opening, this door being characterised in that it also comprises a support panel bearing fitting elements, covered on at least a part of the surface of its face opposite the exterior panel with a cladding sheet and fixed to the interior panel and, on the side of the support panel covered with the cladding sheet, a trim strip fixed on at least one of the respective interior and support panels, also bearing fitting elements, and having at least one opening facing at least one part of the cladding sheet.

The invention also relates to a method of manufacture of a vehicle door in which an interior panel and an exterior panel are fixed to one another in such a manner as to form a bodywork element, characterised in that a support panel bearing fitting elements is then fixed on the interior panel, next a trim strip is fixed on at least one of the respective support and interior panels.

By virtue of this design, the fittings are positioned on the support panel in a more accessible manner than in the door casing, which facilitates the installation. Moreover, the support panel and possibly the strip can be equipped with their elements by a specialist subcontractor,

and the vehicle manufacturer can install these pre-assembled sub-assemblies on the doors using the "just-in-time" technique. Equally, the support panel can be fixed to the interior panel by screws, since it is intended to be partially covered by the trim strip, which can hide the screws, and can itself be fixed by clipping in so far as it only bears elements of a moderate weight (made from synthetic material for example).

Other characteristics and advantages of the invention will become apparent from the following description of an embodiment of this invention which is given by way of non-limiting example and illustrated in the appended drawing showing an exploded view of a door according to the invention.

Like the conventional doors referred to above, the door shown in the drawing (right-hand front door) comprises an exterior panel 1 made from sheet metal fixed by crimping on an interior panel 2 also made from sheet metal (liner) having an opening 21, but the opening in this case is of large dimensions and extends to the lower part of the interior panel 2.

According to the invention it also comprises another panel 3 which is approximately flat, is made from composite material and is intended to support various fittings as will be described below, fixed on the liner 2 by screws covered on at least a part of its face opposite the exterior panel 1 with a cladding sheet, made for example from fabric or leather, and on the side of the support panel 3 covered with the cladding sheet, a cladding part 4 which is shaped, for example moulded, known as an edging strip, also made from composite material, which has integrally in relief upon it a handle 41 for closing the door and fronts of the side pockets 42, 43; the support panel 3 and the trim strip 4 have openings intended to receive the various elements which are fixed on them by screwing or by clipping, and the strip 4 also comprises at least one opening 44 facing at least a part of the cladding sheet of the support panel 3 to allow it to show through; the strip 4 is fixed by clipping on the support panel 3 and/or the liner 2 and advantageously zones of this strip are superimposed on the heads of the fixing screws (or the like) of the support panel which would otherwise be visible on the face thereof opposite the liner; therefore the exterior panel 1, the liner 2, the support panel 3 and the strip 4 succeed one another from the exterior towards the interior; the handle for closing the door 41 is fixed by screws on the support panel 3 in the lower part and on a door reinforcement in

the upper part; the back of the side pockets is formed by the zones of the support panel 3, which may be covered by the cladding sheet, which are facing the fronts 42, 43. Thus the support panel 3 and the strip 4 both have a cladding (decorative) function and a support function for fitting elements.

Like the conventional doors, this door is equipped in particular with a lock which in this case is screwed on the liner 2 in the rear part, and a window 5 which is movable in vertical translation and connected to window control mechanism comprising a central guide rail 51 by which it is supported, a geared motor 52 and actuating cables 53 driven by the geared motor, fixed by screwing on the support panel 3 on the side of the liner 2, and which is controlled by a window control device 54 fixed by clipping on this panel 3 on the side of the strip 4 and passing through an opening in the latter. An air duct 6 provided with grilles 61 clipped thereon and fixed by screws on the support panel 3 as well as cable harnesses for the electrical power supply, particularly for a door light 7 clipped on the strip 4 and for the geared motor 52 for the window control are also inserted into the casing formed by the exterior panel 1 and the liner 2, closed at least partially by the support panel 3.

The door further comprises an opening handle 8 on which is clipped a cap 81, fixed by screws on the support panel 3 on the side opposite the strip 4 and passing through an opening in the panel, as well as a hinge 91 of the side pocket; a loudspeaker grille 93 is also clipped on this support panel 3. An assembly of demisting elements (particularly grilles 94 and duct 95) and a cap 96 bearing a door-locking device 97 are disposed on the strip 4.

This structure permits manufacture of the doors using the process known as "just-in-time"; using this technique, independent installation takes place whereby the fittings which the support panel 3 is to bear are installed on the support panel and the ones for the edging strip 4 are installed on the edging strip; this installation can be carried out by specialist subcontractors; then the support panel 3 and the edging strip 4 each provided with its fittings to form a pre-assembled assembly can be installed on the bodywork part intended to form the door which has also already been produced by fixing the exterior panel 1 to the liner 2 for example by crimping (this bodywork part then being produced by the vehicle manufacturer).

The installation of the elements of the support panel 3 can be carried out according to the following procedure: the air duct 6, the opening handle 8, as well as the window control mechanism consisting of the rail 51, the geared motor 52 and the cables 53, and the hinge 91. of the side pocket cover 92 are screwed onto this support panel 3 which has been previously covered with the cladding sheet; then the movable window 5 is mounted on the window control mechanism in the lower position by engaging it in the rail 51; then the cap 81 of the handle 8 is clipped onto the latter and the side pocket cover 92 is clipped onto the hinge 91; finally the window control device 54 and the loudspeaker grille 93 are clipped onto this panel 3.

For the installation of the elements of the strip 4 with which the handle 41 for closing the door is integrated, it is sufficient for the demisting assembly 94, 95, the cap 96 for the door locking device 97 and the door light 7 to be clipped onto this strip.

As has been seen, for the installation of the door first of all the exterior panel 1 is crimped on the liner 2; then the lock is screwed onto this liner in the rear part; next the support panel 3 equipped with the liner is positioned in such a way that the window 5 engages in a rear guide rail 10 forming part of the assembly comprising the exterior panel 1 and the interior panel 2, and this support panel is screwed onto the liner (in this case by means of twelve screws); after this, the cable harnesses and particularly the one for the light 7 and for the geared motor for the window control are connected; the rod connected to the opening handle 8 is put in place, then the equipped strip 4 is clipped onto the support panel 3 and the liner 2, if necessary in such a way that the screws for fixing the support are hidden by zones of the strip, and by this assembly the side pockets are formed between the support panel 3 and the strip 4; finally the grilles 61 of the air duct 6 are clipped onto the latter and the handle 41 for closing the door is screwed onto the supper panel 3 in the lower part and on the door reinforcement in the upper part.

Thus the various elements are positioned in a more accessible manner than in the case of the casings of conventional doors, which permits easier, quicker and more economical assembly.

Naturally, the invention is not limited to the form and the embodiment thus described and illustrated, and other forms and other embodiments could be envisaged without departing from the scope of the invention.

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(71) Demandeur : **FRANCE DESIGN Société anonyme**
La Boujallère
F-79140 Le Pin (FR)

(72) Inventeur : **Queveau, Gérard**
Amik Farm
F-79140 Le Pin (FR)

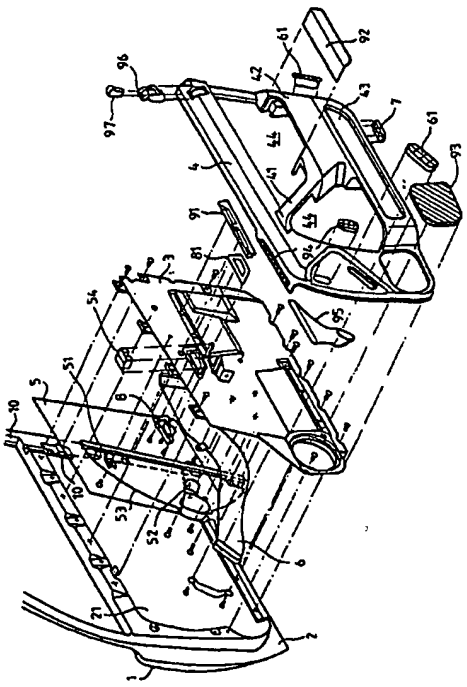
(74) Mandataire : **Farges, Roger (FR) et al**
Cabinet Claude Rodhain 30, rue La Boétie
F-75008 Paris (FR)

(54) Porte de véhicule.

(57) L'invention concerne une porte de véhicule et son procédé de fabrication, du type dans lequel un panneau extérieur (1) est serti à un panneau intérieur (2) comportant au moins une ouverture (21), pour constituer un élément de carrosserie.

Selon l'invention, un panneau support (3) portant les organes d'équipement de la porte est fixé au panneau intérieur (2), puis un bandeau d'habillage (4) portant également des organes d'équipement et comportant une poignée (41) de tirage de porte intégrée est fixé sur au moins l'un des panneaux précédents.

Grâce à cette structure, les organes d'équipement sont mis en place de façon plus accessible que dans les portes conventionnelles, ce qui facilite le montage. De plus, le panneau support et le bandeau peuvent être équipés de leurs éléments par un sous-traitant spécialisé, le constructeur du véhicule pouvant monter ces sous-ensembles pré-assemblés sur les portes suivant le procédé du "juste-à-temps".



EP 0 579 535 A1

L'invention concerne une porte de véhicule et notamment une porte de véhicule du type comportant un panneau extérieur et un panneau intérieur fixés l'un à l'autre, le panneau intérieur comportant au moins une ouverture.

Actuellement, les portes des véhicules automobiles sont traditionnellement constituées d'un panneau extérieur généralement en tôle constituant un élément de carrosserie, d'un panneau intérieur également en tôle appelé doublure sur lequel est serti le panneau extérieur, ces deux panneaux délimitant entre eux un caisson dans le volume duquel sont disposés divers équipements introduits par des trous de passage prévus dans la doublure (vitre, mécanisme de lève-vitre, serrure, poignée d'ouverture de la porte, etc.), et d'un panneau de garnissage en matériau synthétique ou revêtu d'un tel matériau et habillant la partie de la doublure en-dessous de la "fenêtre" pour la vitre, supportant des commandes de lève-vitre, un dispositif de désembuage de cette vitre, un conduit d'aération agrafé sur la doublure, et des vide-poches.

Dans ces conditions, le montage des éléments dans le caisson est délicat, les trous de passage étant petits pour éviter d'affaiblir la doublure, et les fixations étant à réaliser sur la doublure à l'intérieur du caisson, qui n'est pas directement visible.

De plus, le montage des éléments directement dans le caisson interdit une conception sous forme de sous-ensembles pré-assemblés pouvant être montés rapidement.

Pour résoudre ces problèmes, on pourrait également envisager de réaliser une ouverture relativement étendue dans le panneau intérieur, et de monter les équipements sur le panneau de garnissage de telle sorte que l'ensemble constitue le caisson déjà cité. Dans ce cas, le panneau de garnissage faisant office de support de mécanismes, aurait lui-même une fonction mécanique importante, et devrait donc être fixé solidement sur la structure de la porte (la doublure), par vis ou analogue ; les têtes de vis étant peu esthétiques, devraient être masquées par des capuchons qui ne le sont guère plus. De plus, la fixation des mécanismes à la fois sur la tôle de la doublure et sur le matériau synthétique du panneau de garnissage entraîneraient une surface de recouvrement tôle/plastique élevée, défavorable pour le poids ; si l'on choisissait de réduire l'étendue de l'ouverture dans la tôle de la doublure, le montage de la vitre, qui doit être positionnée dans des guidages avant et arrière à l'intérieur du caisson de porte, serait rendu difficile, voire impossible.

L'invention a pour but de remédier à ces inconvénients et de créer une porte de véhicule telle que la mise en place des équipements soit facilitée par une plus grande accessibilité à leur zone d'implantation, sans que cette porte devienne pour autant fragile.

L'invention a également pour but de permettre qu'une partie de la porte, à savoir celle portant les équipements, soit réalisée par un sous-traitant spécialisé, cette partie étant ensuite assemblée à une autre constituée principalement des éléments d'habillage et de carrosserie, réalisée par le constructeur du véhicule ou/et un autre sous-traitant.

A cet effet, l'invention concerne une porte de véhicule, du type comprenant un panneau extérieur et un panneau intérieur fixés l'un à l'autre, le panneau intérieur comportant au moins une ouverture, porte caractérisée en ce qu'elle comprend également un panneau support portant des organes d'équipement, revêtu sur au moins une partie de la surface de sa face opposée au panneau extérieur, d'une feuille d'habillage, et fixé au panneau intérieur, et, du côté du panneau support revêtu de la feuille d'habillage, un bandeau d'habillage fixé sur au moins l'un des panneaux respectivement intérieur et support, portant également des organes d'équipement, et comportant au moins une ouverture en regard d'au moins une partie de la feuille d'habillage.

L'invention concerne également un procédé de fabrication de porte de véhicule dans lequel on fixe l'un à l'autre un panneau intérieur et un panneau extérieur de manière à constituer un élément de carrosserie, caractérisé en ce que l'on fixe ensuite un panneau support portant des organes d'équipement, sur le panneau intérieur, puis on fixe un bandeau d'habillage sur au moins l'un des panneaux respectivement support et intérieur.

Grâce à cette conception, les équipements sont mis en place sur le panneau support d'une façon plus accessible que dans le caisson de porte, ce qui facilite le montage. De plus, le panneau support et éventuellement le bandeau peuvent être équipés de leurs éléments par un sous-traitant spécialisé, et le constructeur du véhicule peut monter ces sous-ensembles pré-assemblés sur les portes suivant le mode de montage dit "juste-à-temps". Egalement, le panneau support peut être fixé au panneau intérieur par des vis, puisqu'il est destiné à être partiellement recouvert par le bandeau d'habillage, qui peut cacher celles-ci, et être lui-même fixé par agrafage dans la mesure où il ne porte lui-même que des organes de poids modéré (en matière synthétique par exemple).

D'autres caractéristiques et avantages de l'invention ressortiront de la description qui va suivre d'une forme de réalisation de cette invention donnée à titre d'exemple non limitatif, représentée sur la figure jointe qui est donc une vue explosée d'une porte selon l'invention.

Comme les portes conventionnelles évoquées plus haut, celle représentée sur la figure (porte avant droite) comporte un panneau extérieur 1 en tôle fixé par sertissage sur un panneau intérieur 2 également en tôle (doublure) présentant une ouverture 21, mais il s'agit ici d'une ouverture de grandes dimensions s'étendant à la partie inférieure du panneau intérieur 2.

Selon l'invention, elle comporte également un autre panneau 3 approximativement plat, en matériau composite, destiné à supporter différents équipements comme cela sera décrit dans la suite, fixé sur la doublure 2 par des vis, revêtu sur au moins une partie de sa face opposée au panneau extérieur 1, d'une feuille d'habillage par exemple en tissu ou en cuir, et, du côté du panneau support 3 revêtu de la feuille d'habillage, une pièce d'habillage 4 en forme, par exemple moulée, dite "bandeau périphérique", également en matériau composite, à laquelle sont intégrés en relief une poignée 41 de tirage de porte et des façades de vide-poche 42, 43 ; le panneau support 3 et le bandeau d'habillage 4 présentent des ouvertures destinées à recevoir les différents organes qui leurs sont fixés par vissage ou par clipsage, et le bandeau 4 comporte également au moins une ouverture 44 en regard d'au moins une partie de la feuille d'habillage du panneau au support 3, pour la laisser apparaître ; le bandeau 4 est fixé par agrafage sur le panneau support 3 et/ou la doublure 2, et, avantageusement, des zones de ce bandeau sont superposées aux têtes des vis de fixation (ou analogues) du panneau support qui sans cela seraient visibles sur la face de celui-ci opposée à la doublure ; de l'extérieur vers l'intérieur, se succèdent donc le panneau extérieur 1, la doublure 2, le panneau support 3 et le bandeau 4 ; la poignée de tirage de porte 41 est fixée par vis sur le panneau support 3 en partie basse et sur un raidisseur de porte en partie haute ; le fond des vide-poches est constitué par les zones du panneau support 3, éventuellement recouvertes par la feuille d'habillage, qui sont en regard des façades 42, 43. Ainsi, le panneau support 3 et le bandeau 4 ont tous deux une fonction d'habillage (décorative) et une fonction de support d'organes d'équipement.

Cette porte est équipée notamment, comme les portes conventionnelles, d'une serrure, qui est ici vissée sur la doublure 2 en partie arrière, et d'une vitre 5 mobile en translation verticale solidarisée à un mécanisme de lève-vitre comportant un rail de guidage central 51 par lequel elle est supportée, un moto-réducteur 52, et des câbles d'actionnement 53 entraînés par le moto-réducteur, fixé par vissage sur le panneau support 3 du côté de la doublure 2, et qui est commandé par un dispositif de commande de lève-vitre 54 fixé par clipsage sur ce panneau 3 du côté du bandeau 4 et passant au travers d'une ouverture de celui-ci. Un conduit d'aération 6 muni de grilles 61 clipsées sur lui et fixé par vis sur le panneau support 3, et des faisceaux d'alimentation électrique, notamment pour une lampe 7 d'éclairage de porte clipsée sur le bandeau 4 et pour le moto-réducteur 52 du lève-vitre, sont également insérés dans le caisson formé par le panneau extérieur 1 et la doublure 2, fermé au moins partiellement par le panneau support 3.

De plus, la porte comporte une poignée d'ouverture 8 sur laquelle est clipsé un enjoliveur 81, fixée par vis sur le panneau support 3 du côté opposé au bandeau 4 et passant au travers d'une ouverture du panneau, de même qu'une articulation 91 de ce vide-poche ; une grille 93 de haut-parleur est clipsée également sur ce panneau support 3. Un ensemble d'organes de désembuage (notamment grilles 94 et conduit 95) et un enjoliveur 96 portant un dispositif de condamnation de porte 97 sont clipsés sur le bandeau 4.

Cette structure permet une fabrication des portes selon le procédé connu sous le nom de "juste-à-temps" ; dans cette hypothèse, on monte indépendamment sur le panneau support 3 les équipements que celui-ci doit porter, et sur le bandeau périphérique 4 les siens propres ; ce montage peut être effectué par des sous-traitants spécialisés ; puis, le panneau support 3 et le bandeau périphérique 4 munis chacun de ses équipements pour constituer un ensemble préassemblé peuvent être montés sur l'élément de carrosserie destiné à constituer la porte que l'on a également préalablement réalisé en fixant par exemple par sertissage le panneau extérieur 1 à la doublure 2 (cet élément de carrosserie étant alors réalisé par le constructeur du véhicule).

Le montage des éléments du panneau support 3 peut-être effectué selon le procédé suivant : on visse le conduit d'aération 6, la poignée d'ouverture 8, ainsi que le mécanisme de lève-vitre constitué du rail 51, du moto-réducteur 52 et des câbles 53, et l'articulation 91 du couvercle 92 de vide-poche, sur ce panneau-support 3 préalablement revêtu de la feuille d'habillage ; puis on monte la vitre mobile 5 sur le mécanisme de lève-vitre en position basse en l'engageant dans le rail 51 ; ensuite, on clipse l'enjoliveur 81 de la poignée 8 sur celle-ci, et le couvercle 92 du vide-poche sur l'articulation 91 ; enfin, on clipse le dispositif de commande de lève-vitre 54 et la grille 93 de haut-parleur sur ce panneau 3.

Pour le montage des éléments du bandeau 4 auquel est intégrée la poignée 41 de tirage de porte, il suffit que l'on clipse l'ensemble de désembuage 94, 95, l'enjoliveur 96 du dispositif de condamnation de porte 97, et la lampe 7 d'éclairage de porte, sur ce bandeau.

Comme on l'a vu, pour le montage de la porte, on sertit tout d'abord le panneau extérieur 1 sur la doublure 2 ; puis on visse la serrure sur cette doublure en partie arrière ; ensuite, on met en place le panneau support 3 équipé sur la doublure de telle sorte que la vitre 5 s'engage dans un rail de guidage arrière 10 appartenant à l'ensemble panneau extérieur 1-panneau intérieur 2, et on visse ce panneau support sur la doublure (ici au moyen de douze vis) ; après quoi, on branche les faisceaux et notamment celui de la lampe 7 d'éclairage et du moto-réducteur 52 de lève-vitre ; on met en place la tringle reliée à la poignée d'ouverture 8, puis on agrafe le bandeau 4 équipé sur le panneau support 3 et la doublure 2, si nécessaire de telle

sorte que les vis de fixation du support soient cachées par des zones du bandeau, et l'on constitue par cet assemblage les vide-poches entre le panneau support 3 et le bandeau 4 ; enfin, on clipse les grilles 61 du conduit d'aération 6 sur celui-ci et on visse la poignée 41 de tirage de porte sur le panneau support 3 en partie basse et sur le raidisseur de porte en partie haute.

Les divers éléments sont ainsi mis en place de manière plus accessible que dans le cas des caissons des portes conventionnelles, ce qui permet un montage plus aisé, plus rapide, et plus économique.

Bien entendu, l'invention n'est pas limitée à la forme et au mode de réalisation ainsi décrits et représentés, et on pourra en prévoir d'autres formes et d'autres modes sans sortir de son cadre.

Revendications

1 - Porte de véhicule, du type comprenant un panneau extérieur (1) et un panneau intérieur (2) fixés l'un à l'autre, le panneau intérieur (2) comportant au moins une ouverture (21), porte caractérisée en ce qu'elle comprend également un panneau support (3) portant des organes d'équipement, revêtu sur au moins une partie de sa face opposée au panneau extérieur (1), d'une feuille d'habillage, et fixé au panneau intérieur (2), et, du côté du panneau support (3) revêtu de la feuille d'habillage, un bandeau d'habillage (4) fixé sur au moins l'un des panneaux respectivement intérieur et support, portant également des organes d'équipement, et comportant au moins une ouverture (44) en regard d'au moins une partie de la feuille d'habillage.

2 - Porte selon la revendication 1, caractérisée en ce que le panneau support (3) porte au moins un mécanisme de lève-vitre (51, 52, 53) et un dispositif de commande de lève-vitre (54), ainsi qu'une poignée (8) d'ouverture de porte.

3 - Porte selon la revendication 1, caractérisée en ce que le bandeau d'habillage (4) est muni d'une poignée (41) de tirage de porte, et porte au moins des organes de désembuage (94, 95) et un dispositif de condamnation de porte (97).

4 - Porte selon la revendication 1, caractérisée en ce que le panneau support (3) porte au moins un mécanisme de lève-vitre comportant un rail (51) dans lequel est engagée une vitre (5), un moto-réducteur (52), et des câbles d'actionnement (53) entraînés par le moto-réducteur.

5 - Porte selon la revendication 1, caractérisée en ce que le panneau support (3) porte au moins un conduit d'aération (6), une articulation (91) de couvercle de vide-poche portant elle-même un couvercle (92) de vide-poche, et une grille (93) de haut-parleur.

6 - Porte selon la revendication 1, caractérisée en ce que, sur le bandeau (4), sont clipsés un enjoliveur (96) de dispositif de condamnation de porte (97), et une lampe (7) d'éclairage de porte.

7 - Procédé de fabrication de porte de véhicule dans lequel on fixe l'un à l'autre un panneau intérieur (2) et un panneau extérieur (1) de manière à constituer un élément de carrosserie, caractérisé en ce que l'on fixe ensuite un panneau support (3) portan des organes d'équipement, sur le panneau intérieur (2), puis on fixe un bandeau d'habillage (4) sur au moins l'un des panneaux respectivement support (3) et intérieur (2).

8 - Procédé selon la revendication 7, caractérisé en ce que l'on visse une serrure sur le panneau intérieur (2), puis, après avoir fixé le panneau support (3) sur ce panneau intérieur, on branche électriquement des faisceaux d'alimentation électrique, et ensuite on fixe le bandeau (4).

9 - Procédé selon la revendication 7, caractérisé en ce que l'on monte les organes d'équipement sur le panneau support (3) avant de fixer ce panneau support sur le panneau intérieur (2), et pour ce faire, on fixe sur ce panneau support (3) au moins une poignée d'ouverture (8) ainsi qu'un mécanisme de lève-vitre comprenant un rail (51), puis on monte une vitre mobile (5) sur le mécanisme de lève-vitre en position basse en l'engageant dans le rail (51).

10 - Procédé selon la revendication 9, caractérisé en ce que l'on fixe sur le panneau support (3), tout d'abord un conduit d'aération (6), et, après le mécanisme de lève-vitre (51, 52, 53), une articulation (91) de couvercle (92) de vide-poche, puis, on monte la vitre mobile (5), on fixe un enjoliveur (81) sur la poignée d'ouverture (8), et on monte le couvercle (92) de vide-poche sur son articulation (91), ainsi qu'un dispositif de commande de lève-vitre (54) et une grille de haut-parleur (93) sur le panneau support (3).

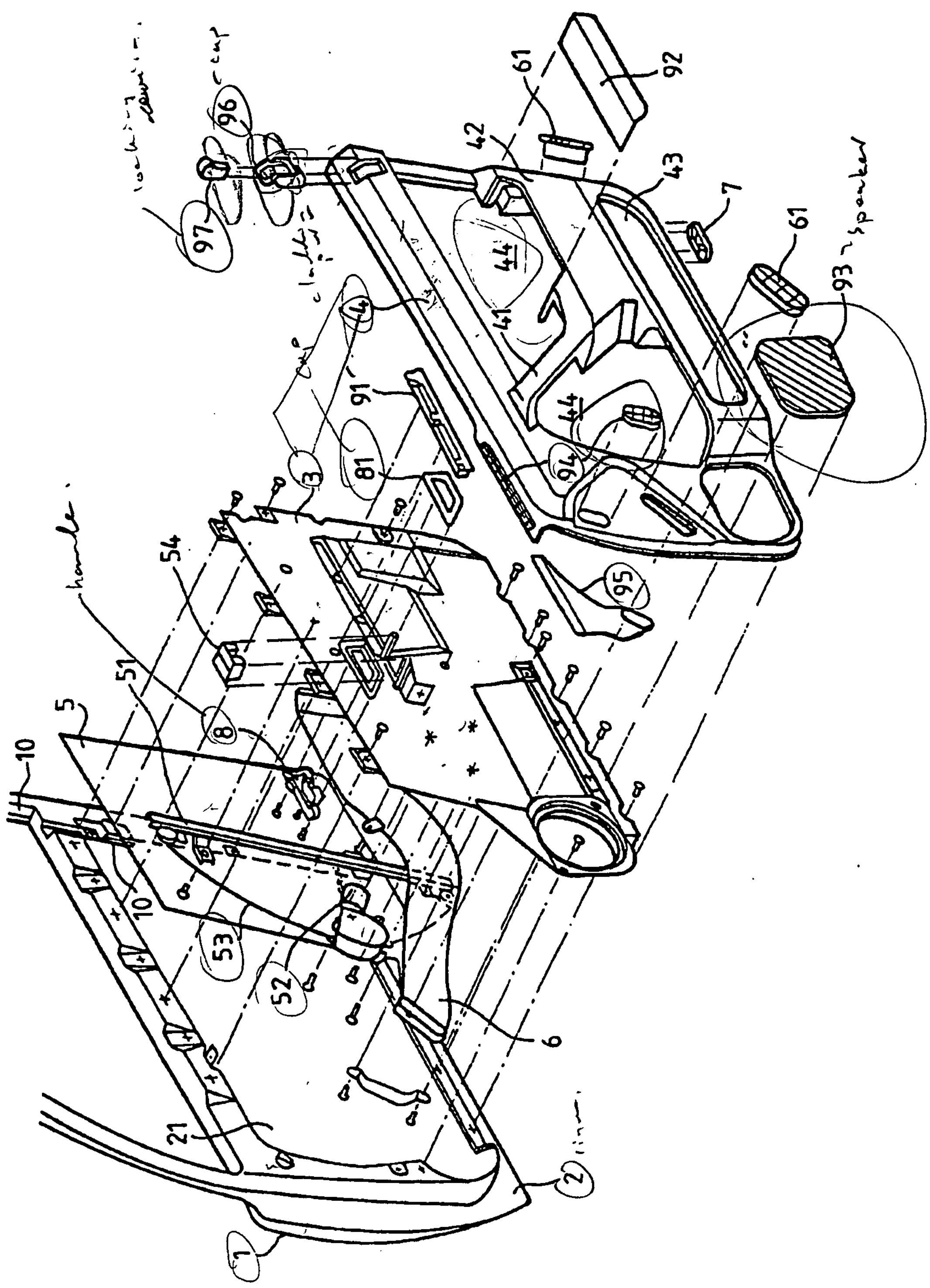
11 - Procédé selon la revendication 7, caractérisé en ce que l'on monte des organes d'équipement sur le bandeau d'habillage (4) auquel a été préalablement intégrée en relief au moins une poignée (41) de tirage de porte, avant de fixer ce bandeau (4), et plus particulièrement, on fixe sur ce bandeau (4) des organes d'un ensemble de désembuage (94).

12 - Procédé selon la revendication 7, caractérisé en ce que, avant de fixer le bandeau d'habillage (4), on lui intègre une poignée (41) de tirage de porte, et après avoir fixé le bandeau (4), on fixe cette poignée (41) sur le panneau support (3) en partie basse et sur un raidisseur de porte en partie-haute.

13 - Procédé selon la revendication 7, caractérisé en ce que l'on fixe le panneau support (3) sur le panneau intérieur (2) au moyen d'organes de fixation tels que des vis, partiellement visibles sur la face du panneau support (3) opposée au panneau intérieur (2), puis on agrafe le bandeau d'habillage (4), en superposant des zones de ce bandeau d'habillage aux parties visibles des organes de fixation, sur au moins l'un des panneaux respectivement intérieur (2), et support

(3).

14 - Procédé selon la revendication 7, caractérisé en ce que, sur le panneau support (3), et avant sa fixation au panneau intérieur (2), on visse un conduit d'aération (6), une poignée d'ouverture (8), un mécanisme de lève-vitre (51, 52, 53), et une articulation (91) de couvercle de vide-poche, puis on clipse un enjoliveur (81) sur la poignée, et le couvercle (92) du vide-poche sur l'articulation (91), et on clipse le dispositif de commande de lève-vitre (54) et une grille (93) de haut-parleur sur le panneau support (3).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RAPPORT DE RECHERCHE EUROPEENNE

Numero de la demande
EP 93 40 1801

DOCUMENTS CONSIDERES COMME PERTINENTS

Catégorie	Citation du document avec indication, en cas de besoin, des parties pertinentes	Revendication concernée	CLASSEMENT DE LA DEMANDE (Int. Cl.5)
X A	EP-A-0 286 923 (THE BUDD CO.) * abrégé; figure 1 *	1,4,7 2,3	B60J5/04
X	EP-A-0 416 208 (BROSE) * colonne 5, ligne 27 - colonne 6, ligne 14; figure 2 *	1	
			DOMAINES TECHNIQUES RECHERCHES (Int. Cl.5)
			B60J

Le présent rapport a été établi pour toutes les revendications

Lieu de la recherche	Date d'achèvement de la recherche	Examinateur
LA HAYE	31 AOUT 1993	FOGLIA A.

CATEGORIE DES DOCUMENTS CITES

X : particulièrement pertinent à lui seul
Y : particulièrement pertinent en combinaison avec un autre document de la même catégorie
A : arrière-plan technologique
O : divulgation non-écrite
P : document intercalaire

T : théorie ou principe à la base de l'invention
E : document de brevet antérieur, mais publié à la date de dépôt ou après cette date
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